1. A system for adaptive configuration, the system comprising:

a first set of configuration information, the first set of configuration information including a first subset of configuration information and a second subset of configuration information;

a plurality of heterogeneous computational elements, the plurality of heterogeneous computational elements including a first computational element and a second computational element, the first computational element having a first fixed architecture and the second computational element having a second fixed architecture, the first fixed architecture being different than the second fixed architecture; and

an interconnection network coupled to the plurality of heterogeneous computational elements, the interconnection network operative to configure the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes, in response to the first subset of configuration information, and the interconnection network further operative to reconfigure the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes, in response to the second subset of configuration information, the first functional mode being different than the second functional mode.

2. The system of claim 1, wherein the first set of configuration information provides a first system operating mode.

3. The system of claim 2, further comprising:

a second set of configuration information, the second set of configuration information providing a second system operating mode.

4. The system of claim 3, wherein the first set of configuration information corresponds to a first system reconfiguration capacity and the second set of configuration information corresponds to a second system reconfiguration capacity.

5. The system of claim 1, wherein the first set of configuration information is selected from a plurality of sets of configuration information.

6. The system of claim 1, further comprising:

a memory coupled to the plurality of heterogeneous computational elements and to the interconnection network, the memory operative to store the first set of configuration information.

7. The system of claim 1, wherein the first plurality of configuration information is stored in a second plurality of heterogeneous computational elements configured for a memory functional mode.

8. The system of claim 1, wherein the first plurality of configuration information is stored as a configuration of the plurality of heterogeneous computational elements.

9. The system of claim 1, wherein the first set of configuration information is stored in a machine-readable medium.

10. The system of claim 1, wherein the first set of configuration information is transmitted through an air interface.

11. The system of claim 1, wherein the first set of configuration information is transmitted through a wireline interface.

12. The system of claim 1, wherein the first set of configuration information is embodied as a plurality of discrete information data packets.

13. The system of claim 1, wherein the first set of configuration information is embodied as a stream of information data bits.

14. The system of claim 1, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of

specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

15. The system of claim 1, wherein the plurality of functional modes includes linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

16. The system of claim 1, wherein the first subset of configuration information and the second subset of configuration information are commingled with data to form a singular bit stream.

17. The system of claim 1, further comprising:

a controller coupled to the plurality of heterogeneous computational elements and to the interconnection network, the controller operative to direct and schedule the configuration of the plurality of heterogeneous computational elements for the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

18. The system of claim 17, wherein the controller is further operative to time and schedule the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data.

19. The system of claim 17, wherein the controller is further operative to select the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the first set of configuration information.

20. The system of claim 1, further comprising:

a second plurality of heterogeneous computational elements coupled to the interconnection network, the second plurality of heterogeneous computational elements

configured for a controller operating mode, the second plurality of heterogeneous computational elements operative to direct and schedule the configuration of the plurality of heterogeneous computational elements for the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

21. The system of claim 20, wherein the second plurality of heterogeneous computational elements is further operative to time and schedule the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data.

22. The system of claim 20, wherein the second plurality of heterogeneous computational elements is further operative to select the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the first set of configuration information.

23. The system of claim 1, wherein system is embodied within a mobile station having a plurality of operating modes.

24. The system of claim 23, wherein the plurality of operating modes of the mobile station includes mobile telecommunication, personal digital assistance, multimedia reception, mobile packet-based communication, and paging.

25. The system of claim 1, wherein system is embodied within a server having a plurality of operating modes.

26. The system of claim 1, wherein system is embodied within an adjunct network entity having a plurality of operating modes.

27. The system of claim 1, wherein the plurality of heterogeneous computational elements are configured to generate a request for a second set of

configuration information, the second set of configuration information providing a second system operating mode.

28. The system of claim 27, wherein the plurality of heterogeneous computational elements are further configured to determine system reconfiguration capacity prior to utilizing the second set of configuration information to reconfigure for a second system operating mode.

29. The system of claim 28, wherein system reconfiguration capacity is determined in a plurality of predefined units of hardware.

30. The system of claim 1, wherein system is embodied within an integrated circuit.

31. The system of claim 1, wherein a first portion of the plurality of heterogeneous computational elements are operating in the first functional mode while a second portion of the plurality of heterogeneous computational elements are being configured for the second functional mode.

32. A method for adaptive configuration, the method comprising:

receiving a first set of configuration information, the first set of configuration information including a first subset of configuration information and a second subset of configuration information;

in response to the first subset of configuration information, configuring through an interconnection network a plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes, the plurality of heterogeneous computational elements including a first computational element and a second computational element, the first computational element having a first fixed architecture and the second computational element having a second fixed architecture, the first fixed architecture being different than the second fixed architecture; and

in response to the second subset of configuration information, reconfiguring through the interconnection network the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes, the first functional mode being different than the second functional mode.

33. The method of claim 32, wherein the first set of configuration information provides a first operating mode.

34. The method of claim 32, further comprising:

receiving a second set of configuration information, the second set of configuration information providing a second operating mode.

35. The method of claim 34, wherein the first set of configuration information corresponds to a first reconfiguration capacity and the second set of configuration information corresponds to a second reconfiguration capacity.

36. The method of claim 32, further comprising:

selecting the first set of configuration information from a plurality of sets of configuration information.

37. The method of claim 32, further comprising:

storing the first set of configuration information in a memory.

38. The method of claim 32, further comprising:

storing the first plurality of configuration information in a second plurality of heterogeneous computational elements configured for a memory functional mode.

39. The method of claim 32, further comprising:

storing the first plurality of configuration information as a configuration of the plurality of heterogeneous computational elements.

40. The method of claim 32, further comprising:

storing the first set of configuration information in a machine-readable medium.

41. The method of claim 32, wherein the first set of configuration information is received through an air interface.

42. The method of claim 32, wherein the first set of configuration information is received through a wireline interface.

43. The method of claim 32, wherein the first set of configuration information is embodied as a plurality of discrete information data packets.

44. The method of claim 32, wherein the first set of configuration information is embodied as a stream of information data bits.

45. The method of claim 32, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

46. The method of claim 32, wherein the plurality of functional modes includes linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

47. The method of claim 32, wherein the first subset of configuration information and the second subset of configuration information are commingled with data to form a singular bit stream.

48. The method of claim 32, further comprising:

directing and scheduling the configuration of the plurality of heterogeneous computational elements for the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

49. The method of claim 32, further comprising:

timing and scheduling the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data.

50. The method of claim 32, further comprising:

selecting the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the first set of configuration information.

51. The method of claim 32, wherein the method is operable within a mobile station having a plurality of operating modes.

52. The method of claim 51, wherein the plurality of operating modes of the mobile station includes mobile telecommunication, personal digital assistance, multimedia reception, mobile packet-based communication, and paging.

53. The method of claim 32, wherein the method is operable within a server having a plurality of operating modes.

54. The method of claim 32, wherein the method is operable within an adjunct network entity having a plurality of operating modes.

55. The method of claim 32, further comprising:

configuring the plurality of heterogeneous computational elements to generate a request for a second set of configuration information, the second set of configuration information providing a second operating mode.

56. The method of claim 55, further comprising:

determining reconfiguration capacity prior to utilizing the second set of configuration information to reconfigure the plurality of heterogeneous computational elements for a second operating mode.

57. The method of claim 56, wherein reconfiguration capacity is determined in a plurality of predefined units of hardware.

58. The method of claim 32, wherein the method is operable within an integrated circuit.

59. The method of claim 32, further comprising:

authorizing the reception of the first set of configuration information.

60. The method of claim 32, further comprising:

requesting authorization to receive the first set of configuration information.

61. The method of claim 32, further comprising:

decrypting the first set of configuration information.

62. The method of claim 32, further comprising:

operating a first portion of the plurality of heterogeneous computational elements in the first functional mode while configuring a second portion of the plurality of heterogeneous computational elements for the second functional mode.

63. A method for adaptive configuration, the method comprising:

transmitting a first set of configuration information, the first set of configuration information including a first subset of configuration information and a second subset of configuration information;

wherein when the first set of configuration information has been received, an interconnection network coupled to a plurality of heterogeneous computational elements is operative to configure the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes, in response to the first subset of configuration information, and the interconnection network further operative to reconfigure the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes, in response to the second subset of configuration information, the first functional mode being different than the second functional mode; and

wherein the plurality of heterogeneous computational elements include a first computational element and a second computational element, the first computational element having a first fixed architecture and the second computational element having a second fixed architecture, the first fixed architecture being different than the second fixed architecture.

64. The method of claim 63, wherein the first set of configuration information, when received, provides a first operating mode.

65. The method of claim 64, further comprising:

transmitting a second set of configuration information, the second set of configuration information, when received, providing a second operating mode.

66. The method of claim 65, wherein the first set of configuration information corresponds to a first reconfiguration capacity and the second set of configuration information corresponds to a second reconfiguration capacity.

67. The method of claim 63, further comprising:

selecting the first set of configuration information from a plurality of sets of configuration information.

68. The method of claim 63, further comprising:

accessing the first set of configuration information in a memory.

69. The method of claim 63, further comprising:

accessing the first plurality of configuration information in a second plurality of heterogeneous computational elements configured for a memory functional mode.

70. The method of claim 63, further comprising:

accessing the first set of configuration information in a machine-readable medium.

71. The method of claim 63, wherein the first set of configuration information is transmitted through an air interface.

72. The method of claim 63, wherein the first set of configuration information is transmitted through a wireline interface.

73. The method of claim 63, wherein the first set of configuration information is embodied as a plurality of discrete information data packets.

74. The method of claim 63, wherein the first set of configuration information is embodied as a stream of information data bits.

75. The method of claim 63, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

76. The method of claim 63, wherein the plurality of functional modes includes linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

77. The method of claim 63, wherein the transmission step further comprises commingling data with the first subset of configuration information and the second subset of configuration information to form a singular bit stream.

78. The method of claim 63, wherein the method is operable within a wireless transmitter.

79. The method of claim 63, wherein the method is operable within a server.

80. The method of claim 63, wherein the method is operable within an adjunct network entity.

81. The method of claim 63, wherein the method is operable within an integrated circuit.

82. The method of claim 63, wherein the method is operable within a local area network.

83. The method of claim 63, wherein the method is operable within a wide area network.

84. The method of claim 63, wherein the method is operable within a wireline transmitter.

85. The method of claim 63, further comprising:
receiving a request for transmission of a second set of configuration information, the second set of configuration information providing a second operating mode.

86. The method of claim 63, further comprising:
authorizing the transmission of the first set of configuration information.

87. The method of claim 63, further comprising:
requesting an authorization to transmit the first set of configuration information.

88. The method of claim 63, further comprising:
encrypting the first set of configuration information.

89. An adaptive integrated circuit, comprising:

a plurality of sets of configuration information, the plurality of sets of configuration information including a first set of configuration information and a second set of configuration information;

a plurality of reconfigurable matrices, the plurality of reconfigurable matrices including a plurality of heterogeneous computation units, each heterogeneous computation unit of the plurality of heterogeneous computation units formed from a selected configuration, of a plurality of configurations, of a plurality of fixed computational elements, the plurality of fixed computational elements including a first computational element having a first architecture and a second computational element having a second architecture, the first architecture distinct from the second architecture, the plurality of heterogeneous computation units coupled to an interconnect network and reconfigurable in response to the plurality of sets of configuration information; and

a matrix interconnection network coupled to the plurality of reconfigurable matrices, the matrix interconnection network operative to configure the plurality of reconfigurable matrices in response to the first set of configuration information for a first operating mode and to reconfigure the plurality of reconfigurable matrices in response to the second set of configuration information for a second operating mode.

90. The adaptive integrated circuit of claim 89, further comprising:

a controller coupled to the plurality of reconfigurable matrices, the controller operative to provide the plurality of sets of configuration information to the reconfigurable matrices and to the matrix interconnection network.

91. An adaptive integrated circuit, comprising:

a set of configuration information, the set of configuration information including a first subset of configuration information and a second subset of configuration information;

a plurality of heterogeneous computational elements, the plurality of heterogeneous computational elements including a first computational element and a second computational element, the first computational element having a first fixed architecture and the second computational element having a second fixed architecture, the first fixed architecture being different than the second fixed architecture;

an interconnection network coupled to the plurality of heterogeneous computational elements, the interconnection network operative to configure the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes, in response to the first subset of configuration information, and the interconnection network further operative to reconfigure the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes, in response to the second subset of configuration information, the first functional mode being different than the second functional mode;

wherein a first subset of the plurality of heterogeneous computational elements is configured for a controller operating mode, the controller operating mode including functions for directing configuration and reconfiguration of the plurality of heterogeneous computational elements, for selecting the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the set of configuration information, and for scheduling the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data; and

wherein a second subset of the plurality of heterogeneous computational elements is configured for a memory operating mode for storing the set of configuration information.

92. The adaptive integrated circuit of claim 91, wherein the first subset of the plurality of heterogeneous computational elements and second subset of the plurality of heterogeneous computational elements are distributed among the plurality of heterogeneous computational elements.

93. An adaptive integrated circuit, comprising:

a set of configuration information, the set of configuration information including a first subset of configuration information and a second subset of configuration information;

a plurality of heterogeneous computational elements, the plurality of heterogeneous computational elements including a first computational element and a second computational element, the first computational element having a first fixed architecture and the second computational element having a second fixed architecture of a plurality of fixed architectures, the first fixed architecture being different than the second fixed architecture, and the plurality of fixed architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability; and

an interconnection network coupled to the plurality of heterogeneous computational elements, the interconnection network operative to configure the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes, in response to the first subset of configuration information, and the interconnection network further operative to reconfigure the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes, in response to the second subset of configuration information, the first functional mode being different than the second functional mode, and the plurality of functional modes including linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

94. An adaptive integrated circuit, comprising:

configuration information;

a plurality of fixed and differing computational elements; and

an interconnection network coupled to the plurality of fixed and differing computational elements, the interconnection network operative in response to the configuration information to configure and reconfigure the plurality of fixed and differing computational elements for a plurality of functional modes.

95. The adaptive integrated circuit of claim 94, wherein the configuration information provides an operating mode.

96. The adaptive integrated circuit of claim 94, wherein the plurality of functional modes includes linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

97. The adaptive integrated circuit of claim 94, wherein the configuration information is stored in a portion of the plurality of fixed and differing computational elements configured for a memory functional mode.

98. The adaptive integrated circuit of claim 94, wherein the configuration information is stored as a configuration of the plurality of fixed and differing computational elements.

99. The adaptive integrated circuit of claim 94, wherein the plurality of fixed and differing computational elements are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

100. The adaptive integrated circuit of claim 94, wherein the plurality of fixed and differing computational elements are configured to identify and select the configuration information from a singular bit stream containing data commingled with the configuration information.